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Comprehension of Figurative Language by Hearing Impaired Children in Special Primary Schools

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Abstract

This study examined the comprehension of figurative language of 215 hearing impaired children at special primary schools, and 557 hearing children at regular primary schools in Vietnam. The figurative language tests were developed using idioms and proverbs in the Vietnamese language textbooks from grade 2 to grade 5 of primary schools. The results showed that hearing impaired children comprehended figurative language much lower than hearing children. The figurative language knowledge of hearing impaired children developed over grades, and their figurative language knowledge was found to be related to reading levels, but not to the ages or hearing levels.

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Keywords: hearing impaired children; figurative language; Vietnam

1. Introduction

The provision of formal education for children with hearing impairment in Vietnam began over 125 years ago with the establishment of Lai Thieu special school with an approach that used sign language as the language of instruction (Pitrois, 1914). Currently, there are over 1.1 million disabled children in Vietnam making up 1.18% of the total population (VMOET, 2005). Out of 120,000 hearing impaired children, around 40,000 children are

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provided with education at 50 special schools and all inclusive schools all over the country (Woodward, Nguyen, & Nguyen, 2004). Despite a long and rich history of the education for hearing impaired children, Vietnam still lacks a lot of favorable conditions in providing education for these children, many of them still never go to school and those who do attend school often drop out before completing even grade five, with very few hearing impaired children receiving a secondary or tertiary education (World Bank, 2008). In this field of research, some studies have been carried out to meet the practical needs of the education for hearing impaired children in Vietnam in recent years. However, very few studies exist on the reading of hearing impaired children. Unlike hearing children whose all or most of the multiple processes involved in reading are likely to be developed at a certain level by the beginning reading stage, deaf children are likely to arrive at beginning reading with a very limited knowledge base, inadequately developed cognitive and linguistic skills (King & Quiley, 1985). The literature dealing directly with deafness and reading achievement usually notes the low reading levels of deaf children as compared to their hearing peers (Monreal & Hernandez, 2005; Traxler, 2000; Wauters, Bon, & Tellings, 2006). Research also stresses that besides vocabulary and syntax, figurative language is another area in which many students who are deaf or hard of hearing experience difficulties (Trezek, Wang, & Paul, 2010), and knowledge of figurative language, including similes, metaphors, idioms, and proverbs may influence comprehension of the English language (Smith, Schloss & Israelite, 1986). According to a research on reading of hearing impaired children in Vietnam, there were significant differences in reading comprehension between hearing impaired children in special primary schools and hearing children in regular primary schools (Do & Chung, 2012). This research, however, did not examine the figurative language, an important study content of the curricula of the Vietnamese language subject at primary schools. In the present study, we investigated the comprehension of figurative language of hearing impaired children in special primary schools in Vietnam in comparison with hearing children of equivalent grades.

2. Method

2.1 Subjects

215 hearing impaired children served as subjects for this study. They were drawn from six special primary schools located in six different cities. These special schools are representative of the diversity of educational settings in which hearing impaired children are taught in Vietnam. The subjects were from second grade to fifth grade, and were between the ages of 8 and 19 years with a mean age of 14.4 (SD = 2.2), 96.3% of them had severe to profound hearing impairment (more than 70 dB), 3.7% had moderate hearing impairment (41 – 70 dB) in the better unaided ear. For the purpose of comparison, the tests were also administered to 557 hearing children from two regular primary schools, who aged from 8 to 12 years old with a mean age of 9.6 (SD = 0.2).

2.2 Materials

The figurative language tests were constructed using idioms and proverbs in the Vietnamese language textbooks for children at primary schools. We made a list of all 179 idioms and proverbs in order of appearance in the Vietnamese language textbooks from grade 2 to grade 5, then we asked seven teachers to classify them into three levels: easy, medium and difficult. The idioms and proverbs which were consistently agreed by all or a majority of the teachers would be chosen to make the tests. The tests used multiple choice formats. Each test included 15 idioms and proverbs which appeared in the textbooks of corresponding grade level. In addition, to examine the development of figurative language knowledge, the tests of higher grades included 3 idioms and proverbs of lower grades. The idioms and proverbs were presented independent of context, four response choices were provided for each item, only one of which constituted the target response. The figurative language tests were subjected to reliability and validity analyses. These tests were developed from idioms and proverbs in the Vietnamese language textbooks of primary schools. The target idioms and proverbs were carefully chosen from the teacher's rating. Thus the figurative language tests had content validity. The Cronbach's alphas for tests of grade 2 through grade 5 was .68, .74, .76, and .77 respectively, which indicated acceptable levels of internal consistency for figurative language tests. In order to examine the relationship between figurative language knowledge and reading comprehension, we also administered the reading comprehension tests to all children. The reading comprehension tests were taken from the

"Vietnamese Language Testing Exercises for Students at Primary School" (Dao & Nguyen, 2009; Tran & Dao, 2009).

2.3 Procedure

Administration of the figurative language tests took place at class. Children in each grade were required to take the tests corresponding to their grade levels. Instructions for choosing answers were given, as well as help with the sample questions if needed. The children then proceeded with the rest of the test independently. No time limit was set. In general, it took around twenty minutes for the children to complete the tests. The number of correct answers was the student's score.

3. Results

3.1 Figurative language test results

The figurative language test results revealed that the scores of hearing impaired children in all grades were much lower than hearing children. Specifically, the mean percentage score of hearing impaired children was approximately 33.1 across four grades, whereas the mean percentage score of hearing children was 82.2 on average. The Mann-Whitney's U tests showed significant differences between the scores of hearing impaired children and hearing children in all grades. Results are as follows, grade 2: U=162.5, Z=11.75, P=.00; grade 3: U=331.5, Z=9.99, P=.00; grade 4: U=130.5, Z=10.18, P=.00; grade 5: U=61.5, Z=8.82, P=.00.

Table 1 Figurative language test scores

Grade	Grade 2**		Grade 3**		Grade 4**		Grade 5**	
	HIC	HC	HIC	HC	HIC	HC	HIC	HC
Mean percentage score	30.0	80.5	34.8	78.9	33.9	85.9	33.7	84.1
SD	13.8	15.5	12.4	15.1	15.6	13.9	14.7	13.3
Percentage score range	0-60.0	33.3-100	5.6-66.7	16.7-100	4.8-76.2	19.0-100	0-70.8	33.3-100

***significant difference found (significant at p=0.01); HC: Hearing children; HIC: Hearing impaired children*

The Interquartile Range was used to closely examine the differences of score between hearing impaired children and hearing children. Results showed that most of hearing impaired children (98.1%) had scores equivalent to the scores of the first quarter of hearing children. Only very few hearing impaired children (1.9%) had the equivalent scores with the second quarter of hearing children.

3.2 Development of figurative language knowledge

For hearing impaired children group, the one way ANOVA showed a significant effect of grade level on figurative language of grade 2, $F(3, 211) = 2.76$, $p = .043$, with the mean percentage score of grade 5 ($M = 45.1$) was significantly different than grade 2 ($M = 27.6$). There was also a significant effect of grade level on figurative language of grade 3, $F(2, 137) = 4.34$, $p = .015$, the mean percentage score of grade 5 ($M = 39.2$) was significantly different than grade 3 ($M = 21.8$). Similarly, in hearing children group, the one way ANOVA showed a significant effect of grade level on figures of speech of grade 2, $F(3, 553) = 7.06$, $p = .000$, the mean percentage score of grade 5 ($M = 94.4$) was significantly higher than grade 2 ($M = 85.5$). For figures of speech of grade 3, a significant effect of grade level was also found, $F(2, 414) = 5.80$, $p = .003$, the mean percentage score of grade 5 ($M = 83.2$) was significantly higher than grade 3 ($M = 72.5$).

The results also revealed that when tested on the same idioms and proverbs, hearing children in lower grades always had much better scores than hearing impaired children in higher grades. For example, in case of figurative

language of grade 2, the mean percentage score of hearing children in grade 2 was 85.5, while the mean percentage score of hearing impaired children in grade 5 was 45.1.

Table 2 Comprehension of figurative language of lower grades

HIC's score on figurative language of lower grades						HC's score on figurative language of lower grades					
Grade		2	3	4	5	Grade		2	3	4	5
Mean percentage score	FL of grade 2*	27.6	35.2	32.0	45.1	Mean percentage score	FL of grade 2*	85.5	83.7	91.0	94.4
	FL of grade 3*		21.8	34.0	39.2		FL of grade 3*		72.5	75.4	83.2
	FL of grade 4			38.6	33.3		FL of grade 4			81.3	82.2

FL (Figurative language)

**significant difference found (significant at p=0.05)*

3.3 Relationship of figurative language knowledge and reading comprehension

The Pearson product-moment correlation was used to determine relationships between the figurative language scores and reading comprehension scores. We found that figurative language and reading comprehension scores of hearing impaired children were weakly correlated in grade 2 ($r = .31$, $p = .008$), grade 3 ($r = .33$, $p = .018$), and moderately correlated in grade 4 ($r = .56$, $p = .000$), grade 5 ($r = .44$, $p = .010$). For hearing children, the two scores were weakly correlated in grade 2 ($r = .32$, $p = .000$), grade 4 ($r = .29$, $p = .001$), grade 5 ($r = .38$, $p = .000$), and moderately correlated in grade 3 ($r = .50$, $p = .000$). These findings suggest that the figurative language knowledge of hearing impaired children and hearing children were correlated with their reading comprehension.

3.4 Relationship of figurative language knowledge and ages, hearing levels

Most of hearing impaired children in this study had severe to profound hearing impairment, and their average age was very high, around 14.4 years old. There were many cases that hearing impaired children at age of 18 or even older were in the second grade and other grades. The age of hearing impaired children who studied in the same grade also varied greatly, for example, the age difference between the oldest and the youngest hearing impaired children of the same grade was as much as 9 years old as in the grade 3 (age range: 10-19). A hypothesis here is that: do hearing impaired children that are older or having better residual hearing ability, also comprehend figurative language better than their classmates? Pearson product-moment correlation coefficients were computed to assess the relationship between the figurative language test scores and ages, and hearing levels of hearing impaired children in each grade. However, we found no correlation between those variables in hearing impaired children.

4. Discussion

In the present study, we examined the comprehension of figurative language of hearing impaired children at special primary schools. Our results showed that the figurative language knowledge of hearing impaired children to be much poorer than that of hearing children. Furthermore hearing impaired children not only had lower figurative language knowledge than grade-matched hearing children, but also hearing children in the lower grades. The poor performance of hearing impaired children on figurative language of this study corresponds to the results of other studies. Conley (1976) tested samples of 643 hearing students aged 7 to 19 years and 137 deaf students aged 13 to 20 on a test of English idiom comprehension. She found that the deaf subjects were significantly poorer in their idiom comprehension than their hearing peers. Giorcelli (1982) constructed a test of figurative language consisting of 10 specific aspects of figurative language, and found that the hearing subjects performed at significantly higher levels than the deaf subjects on the total test and 7 of the 10 subtests. Payne (1982) controlled vocabulary and syntax and included thematic pictures in an investigation of comprehension of idiomatic phrases by deaf and hearing

students and found that the hearing students performed significantly better than the deaf students on all levels of semantic difficulty and for all syntactic constructions. Given the deaf children's relative lack of experiential diversity (Marschark, Lang & Albertini, 2002) and syntactic and semantic skills (Paul & Quigley, 1994), it would not be surprising to find that they have little skill in understanding the many nonliteral aspects of English (Boatner & Gates, 1969). In particular, figurative language abilities have been shown to depend on classification skills and, especially, the ability to see relationships across domains as superseding superficial similarities, an area in which deaf children are seen to lag behind hearing peers (Ottem, 1980). In the present study we found a development of figurative language knowledge in hearing impaired children. Specifically, hearing impaired children in grade 5 scored significantly higher than hearing impaired children in grade 2, and grade 3 when tested on the figurative language of grade 2 and grade 3 respectively. This result indicated that the development of figurative language knowledge of hearing impaired children in primary schools is similar to that of hearing children but at a slower pace. Our study revealed that there were correlations between figurative language knowledge and reading comprehension level of hearing impaired children in all grades. However this correlation is not strong enough for figurative language knowledge to appear to be an important predictor of reading comprehension level. The finding is in line with the study results of Fruch, Wilbur and Fraser (1984). They investigated comprehension of 20 English idioms by 287 hearing impaired children between 13.6 to 15.8 years old, and indicated that reading levels was closely related with the idiom test scores. Orlando and Shulman (1989) studied the comprehension of figurative language of twelve severe to profound hearing impaired children, aged 9 to 19 years. They instructed hearing impaired children to read sentences with similes, metaphors, idioms, and proverbs, and to explain them, and also found that the performance of hearing impaired children appeared dependent upon reading level. As with syntax, a limited understanding of figurative language cannot fully explain the poor overall reading achievement of students who are deaf or hard of hearing; however, it is generally accepted that their figurative language knowledge is closely related to their reading comprehension (Trezek, Wang, & Paul, 2010). In the present study, no effect of the age or hearing level of hearing impaired children on their figurative language knowledge was found out. In other words, being older or less hearing impaired than other classmates does not guarantee that the hearing impaired children would have a better understanding of figurative language. This is presumably due to the facts that the hearing impaired children in Vietnam often go to schools at a very late age, and miss out the most appropriate period for learning a language without any kind of early intervention. Moreover, because of the high price of hearing aid, as well as the maintenance and repair services for hearing aids are not always available, and the shortage of specialists and teachers trained in auditory verbal education and early intervention techniques, many hearing impaired children do not have a hearing aid, or they stop wearing hearing aids after some time because they cannot receive adequate support of use of the hearing aids (Charles & Nguyen, 2005). Another reason is that most of the special schools do not pay enough attention to, or try to effectively utilize the residual hearing ability of the hearing impaired children in learning. In summary, this study showed that the figurative language knowledge of hearing impaired children was significantly lower than hearing children in all grades of primary schools. There was a development of figurative language knowledge of hearing impaired children. The figurative language knowledge of hearing impaired children has a relation with their reading comprehension, but not related to their ages or hearing levels. This result lends support to the contentions of teachers that figurative expressions present a major problem in reading for hearing impaired children (Paul & Quigley, 1994). Further research is needed to find effective intervention to help to improve the figurative language knowledge as well as the overall reading ability of hearing impaired children in the special schools.

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